APRIL/MAY 2023

CEL41/BEL41/UEL41 — SEMICONDUCTOR DEVICES AND IC FABRICATION TECHNOLOGY

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Write the expression for collector current.
2. What is the amplification factor?
3. Draw the symbol of D type FET.
4. Mention the difference between FET and BJT.
5. Draw the equivalent circuit of UJT.
6. Write any two application of SCR.
7. What is Schottky effect?
8. Expand: LASER.
9. What do you understand by MSI?
10. Give any two merits and demerits of ICs.

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Describe the transistor as an amplifier.

Or

(b) Elucidate the working of phototransistor.

12. (a) Describe the construction and working characteristics of E type FET.

Or

(b) List out the applications of FET and MOSFET.

13. (a) Explain the V-I characteristic of SCR.

Or

(b) Outline the applications of UJT and SCR.

14. (a) Explain the working of MIM diode.

Or

(b) Give a brief account on LDR.

15. (a) Write a short note on monolithic integrated circuit technology.

Or

(b) Give a brief account on LSI, MSI and VLSI.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the transistor characteristics in CE mode.

17. Explain the construction and working principle of D type MOSFET.

18. Describe the SCR as a switch and rectifier.

19. Describe the construction and working of LED.

20. Explain how will you fabricate the FET and MOSFET.

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